

2019 IEEE INTERNATIONAL WORKSHOP ON Metrology for Industry 4.0 and IoT

NAPLES, ITALY | JUNE 4 - 6, 2019



CALL FOR PAPERS for the Special Session on

SMART MEASUREMENT SYSTEMS FOR ON-LINE QUALITY CONTROL IN INDUSTRY 4.0 ERA

ABSTRACT

On-line quality control is a fundamental process of Industry 4.0 manufacturing. Today's in-line quality control involves quality control systems targeting cyber physical systems (hardware and software components deeply intertwined). Moreover, quality control is often performed on 100% of the production, not only at the end of the line, but also upstream, on components and sub-assemblies. More and more data from the process and the produce are then available for analysis. However, in a real production scenario, availability of data does not by itself guarantee an effective information build-up. In particular, when considering data acquired by quality control systems, measurement uncertainty must be known, kept under control and adequately managed so to keep the confidence level on measured data at the required level and effectively support the following decision making based on data.

Smart quality control systems can be designed to exhibit at local level (single quality control station) real-time adaptive behaviors to keep measurement uncertainty under control even in case of variations of process or product or instrument parameters.

Furthermore, processing of data allows to derive synthetic quality indicators, as well as to implement self-diagnosis and self-calibration to maximize the confidence level of the measurement system output and of the diagnostic judgment.

This session aims to collect papers describing measurement systems and quality control stations exhibiting smart behaviors, as well as papers dealing with the strategies to implement on-line quality controls (taking into account issues of uncertainty and confidence level of measured data, calibration of measurement systems, smart management of sensors, etc.) and finally algorithms for intelligent diagnostics based on measured data.

This Special Session has been organized under the auspices of the **IEEE Sensors Council Italy Chapter**.



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ORGANIZERS



Paolo Chiariotti

Università Politecnica delle Marche, Italy

p.chiariotti@univpm.it



Nicola Paone

Università Politecnica delle Marche, Italy

n.paone@univpm.it



Paolo Castellini

Università Politecnica delle Marche, Italy

p.castellini@univpm.it